

OF INTEREST TO HEALTH VISITORS

MEDICAL ASPECTS OF THE CHINA WAR.

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This interesting article, reprinted by courtesy of the New York monthly magazine *Public Health Nursing* from its November 1941 number, describes public health problems of epidemic and famine encountered among evacuees in China today.

Dr. Robert Baird McClure first went to China in 1934 as a medical missionary. He was field director for the International Red Cross in Central China in 1937 and was in charge of transport of medical supplies from abroad to China for over a year. After a brief furlough in his native Canada, he recently returned to China as head of a mobile ambulance unit of ten ambulances and supply trucks.

The changes that have come about in modern war must be better understood by medical men before we can make a greater contribution to meeting the medical needs of our day. The chief changes in modern war grow not primarily from new tactics, but from the new objectives of the modern campaign. Formerly the military objective was territory, resources, or position, but today it is civilian morale. The reason for this change is not far to seek. If the civilian morale does not collapse, territory captured can be held only at terrific cost, resources captured cannot be exploited, and the industries captured will have been destroyed or sabotaged. If, on the other hand, the civilian morale can be broken, the industries, the resources, and all the rest are at the disposal of the victor, and the military occupation of the territory may not even be necessary. Breakdown of civilian morale, then, is the goal of modern war, and military technique has been altered to deal with it. Medical work naturally suffers in this new attack, for a satisfactory medical service is an essential part of civilian morale.

Medical work in modern war faces four big tasks. Some of these have gained in importance so much, that they can be considered as new features. They are: (1) solution of refugee problems, including control of epidemics, (2) nutrition in blockaded areas, (3) care of the military wounded, (4) care of civilians wounded in air-raids or in guerilla warfare of one kind and another. This article deals with the first two problems only.

There has been a marked unwillingness in the western world to study modern military lessons learned from China. Thus the war in the Far East proclaimed to all that the refugee wave in front of a rapidly advancing mechanized army was a new invention, yet little or no attention was paid to this fact until Poland and Northern France demonstrated it on a still larger scale. Refugee waves do not merely happen. They are the result of deliberate planning. Mild but scattered air-raids a few days in front of the advancing army loosen the roots of the population. Atrocities and frightfulness brought about by further low-flying air-raids, parachute troops, fifth columnists and advancing scouts, keep this mass of humanity on the move.

These waves are obviously a great health menace. Many military advances are made in the spring when smallpox, measles, scarlet fever, and diphtheria are already prevalent. These communicable diseases may be relatively harmless in a stable population. But a band of refugees, hopelessly overcrowded, poorly fed, and low in spirits, trudging through the spring rains all day and huddled into some improvised shelter at night, offer the ideal material for a major epidemic.

Vaccinations against smallpox were in high repute in China before the war, and where vaccine was available, vaccinations were welcomed by the refugees. Inoculations against diphtheria and scarlet fever were less adaptable to such mass use. But they were often used in schools and colleges, before these institutions were obliged to take to the road.

Much could be done for the refugees in places where roadside stations were established at intervals of every half-day's walk or every ten or fifteen miles. In these stations, hot, sterilized water and some hot soup or gruel were obtainable at night, and some sort of primitive shelter could be offered to the weaker women and to the children, particularly to the pregnant and nursing mothers. All refugees coming into such shelters for the night were examined by a lay technician who could isolate for a few hours those who were suspected of having communicable diseases; and these patients would later be given an examination by a trained medical man. Use could be made in this way of lay workers such as school teachers and other volunteers.

Menace of Typhus Fever

Typhus fever offers one of the greatest risks to refugee groups in China. The best protection against this disease is, of course, a system for delousing. While the procedure could not be instituted at each shelter it could be set up at each fourth or fifth shelter. In China, during the winter and spring, scabies is frequently found along with infestation with lice. For this reason the use of kerosene for delousing alone is an insufficient measure. The "dry cleaning," as it is called, is done by using one ounce of kerosene per person on three cotton-wool fluffs, one for the unclipped head, one for the axillae, and one for the pubic area. As a delousing agent, it is not very effective, and it is a serious fire hazard, no matter how much care is exercised in its use within a crowded straw-mat structure. A much more satisfactory method is to clip the hair, followed by a shower bath under a five-gallon-tin shower. One tin of hot water is sufficient for two people, or still greater economy can be used. The shower is followed, where required, by a sulphur ointment rub for scabies.

While this rub is taking place, the patient's clothing has been treated. Delousing cabinets were tried. Where these are properly built, they work very efficiently. They are about six feet high, six feet long, and three feet wide, with a floor made of old oil drum, and a charcoal fire below, fanned by bellows. Some workers,

however, even lack the technical ability to work one of these, and in such cases a very satisfactory substitute was found in ironing the seams of the garments with a charcoal iron of local make, which could be purchased for a few cents.

What one learns from these slapdash methods is, that relative freedom from epidemics can be achieved with measures far below ideal standards in comfort or technique. Lay help also must be enlisted in this service, and some measures taken promptly are far better than ideal plans not put into effect.

The Threat of Epidemic

Plague and cholera offer two great dangers of mass epidemics. Plague has been controlled at the Burma-China border by a most efficient collaboration between British and Chinese government health authorities and experts from the League of Nations. It has been discovered that fortunately plague-infested rats do not travel by motor truck as they do by boats and barges.

Cholera is a larger problem. This disease can spread very rapidly indeed, not only along waterways, but also by carriers along motor roads. The control of outbreaks and the prevention of their spread has again been due to collaboration between government health authorities, League of Nations experts, and the International Committee of the Red Cross. Thus a very careful watch has been kept over a focal centre near Tungting Lake in Central China. Such constant vigilance, with inspection barriers completely surrounding every outlet by both road and water, has been amply rewarded. Mass inoculation at the slightest sign of spread has been promptly carried out. With vaccine supplies of Chinese production, supplemented by liberal grants of a standardized vaccine from both Hong Kong and French Indo-China, many millions of people have been inoculated. It has been found that, under war conditions, such immunity as can be achieved by a single inoculation is ideal. The inoculation now standardized is an injection of 1.0 c.c. of a vaccine containing 6000 millions of vibrio. This heavy dose gives some local reaction and very slight general reaction, and after a week or ten days it gives a relatively high immunity for some three to four months. In populations on the move, and under the loose organization that exists in democratic countries, it is hard to systematize any inoculations that require two doses given a week apart. With the one-inoculation method, the person is given a ticket, or a dab of dye is put on one finger to act as a certificate, in order to avoid dodging or overlapping.

There are three measures which if carried out in a roadside community will give a high protection: (1) Fifty per cent. of the people must be inoculated. (2) All water taken from questionable sources is chlorinated. This is usually done effectively by having boy scouts or girl guides who stand at the water source and add a measured quantity of bleaching powder emulsion to each pailful of water as it is carried away. (3) Gasoline drums of boiled water are put at each busy street corner for both residents and transients to use.

In the treatment of cholera, great advances have been made in both organization and routine. In China we consider that by far the best routine to date is isotonic saline given intravenously in quantities of 2000 c.c. as early as possible to each patient. Since in an epidemic, patients die in from three to eight hours from the onset of the symptoms, considerable organization is required to have apparatus and personnel available at the right time and place. Even with this one injection and no other measure, a mortality of below five per cent. has frequently been obtained. The mortality of untreated patients is around seventy to eighty per cent. For the patients that require some further treatment, a more individualized medical care is necessary. Further injections are usually made with hypertonic saline and with slightly alkaline media. When such treatment is carried out by qualified men, some hospitals have been able to report figures of only 2.5 per cent. to 3.5 per cent. mortality in a large number of epidemic cases. Cholera treatment is still experimental, however, and is always handicapped by a shortage of medical staff in proportion to the work to be done, so progress is slow. Careful records under such conditions are also difficult to maintain.

From the French authorities in Indo-China has come an interesting suggestion which has been tried there with considerable success and seems adapted to needs in China. A doctor gives the first injection intravenously of strongly hypertonic saline in 30 or 40 c.c. of solution in a large syringe. A less highly skilled technician then follows along and gives up to 2000 c.c. or more of normal saline subcutaneously. A doctor on such a round sees each patient and does the more important work himself but leaves the other work to the less technically skilled staff.

Nutrition in Blockaded Areas

The control of nutrition in areas subjected to blockade is a major problem in war medicine today. West China through a combination of wise planning by government authorities and favourable climatic conditions has had good crops ever since the outbreak of the war. In this connection it must be remembered that total war does involve public health collaboration with other agencies to see that adequate labour is allowed for agricultural production and the transport of agricultural products. It may seem odd at first, that doctors should become interested in transportation, yet a solution of that problem is often of vital medical importance. The two great dietary problems of China have been shortages of fruit or its substitutes and of salt. To solve the problem of fruit a type of sweet turnip that is quite tasty and has a high vitamin content has been found in the mountainous areas of China. Publicity to induce farmers to grow more of these turnips, and to encourage people to eat them as a substitute, has had good results and an adequate supply is available. Eaten raw this turnip has a consistency not unlike a winter apple and a somewhat similar taste.

The salt problem was more involved. China formerly got some 75 per cent. of her total salt from the evaporation of sea water,

and all this was under government control. War with its confiscation of government property and a sea blockade cut this supply out entirely. There were various deposits containing chlorides available throughout North China that had been operated as sources of "bootleg" salt and these have been enlarged and exploited since the coastal blockade went into effect. The main supply comes, however, from two large salt-well basins, one in Szechwan in West China and the other in Yunnan in South-West China. The former is rich in iodides and in by-products of all kinds, but the other lies in what must today be one of the worst endemic goitre areas in the world. In the Yunnan area, however, one of the best pieces of public health work was done by the collaboration of such agencies as the government health authorities, the government salt administration, and the League of Nations and International Red Cross Committee, who after a year of work have been able to effect a complete iodization plan to cover all salt for human or animal consumption coming from this area. Overseas Chinese patriots and officials of Java and the Dutch Government have made available through the League of Nations supplies of potassium iodide, adequate to carry on this important work.

Shortage of Doctors and Nurses

Because of China's educational backwardness, there were only about five thousand doctors and about the same number of qualified nurses in all the country when the war began. An army medical service should total ten per cent. of the total number of troops, and with China's three million front-line troops, she should have had 300,000 in medical service. Added to the lack of trained personnel was a lack of organization, and a tragic lack of efficient transportation. Dr. Robert K. S. Lim, director of the Medical Relief Corps of the Chinese Red Cross, has been forced to use thousands of untrained personnel in medical units because of the scarcity of trained doctors and nurses in China. The fact that Dr. Lim did as well as he did in quickly putting a medical relief corps into service can be attributed only to the astounding fortitude and courage of his handful of doctors and nurses. In the past year, he has established emergency training centres to assist in teaching young Chinese girls and housewives the elements of nursing and preventive medicine. These centres, and others contemplated, will become permanent schools of nursing when the war is over.

Heroic Work of Relief Corps

After the fall of Hankow, China employed tactics of "defence in depth", and the troops were scattered over a broad belt some 70 miles deep. The plan of the medical relief corps today is to establish small medical units of six persons, consisting of one doctor, two orderlies and stretcher bearers, and three trained nurses, that can be coordinated with these military tactics. There are 150 such units in the field, spread over a vast area. Many units are set up in camouflaged peasant huts within sound of the fighting,

and often when a line breaks, these small hospitals on muleback must be packed up and removed within an hour. The heroism of the staffs of these units and their coolheadedness in working under conditions of strain and fatigue add a glorious new page to military medical practice.

The staff of the Red Cross Medical Relief Corps at the end of March 1941 numbered 2,800, including sanitary engineers, technicians, pharmacists, mechanics, stretcher bearers, orderlies, office workers, and truck and ambulance drivers. This number included 111 medical doctors and 176 nurses.

Since 1941, the Chinese Government, as a fundamental step for the building of a well organized democratic nation, has initiated a new *hsien* system. The protection of health of every individual in a *hsien*, or county, is one of the essentials in such a system. According to the plan, for every *hsien* there is to be a health centre to provide an adequate public health service, as well as a general clinical service including a 25-to-50-bed hospital. For every rural district of 5,000 to 10,000 population, there is to be a health station under the charge of a public health nurse and midwife to provide general public health service, including medical care of certain common diseases. For every village of 100-to-500 population, there will be a "health agent," usually a trained woman nurse specially trained for carrying out five functions: first aid, smallpox vaccination, birth and death reports, supervision of general cleanliness, and health education.

By means of this *hsien* system, it is hoped that health supervision and medical care of the people will be extended to the villages, thus making modern medical service available to the mass of the population.

CASUALTY CONCENTRATION POINTS

In an interesting series of articles in *The Nursing Mirror* called "The District Nurse and Invasion" Dr. K. W. C. Sinclair-Loutit, Medical Officer for Civil Defence, Finsbury, makes many practical suggestions that might well be adapted to India, and we feel that missionaries and others in outlying stations might prove invaluable were they able to organize Casualty Concentration Points in case of invasion.

In his first article, Dr. Sinclair-Loutit says: "One fact stands high above all others: civilian populations are not going to be allowed to assist the enemy by blocking roads in panic endeavours to get away from the battle zone. Civilians are going to stay put. Amongst those civilians who will stay put, will be the District Nurses and the Home Guard. Full-scale casualty evacuation may well be delayed for days." Each area, therefore, requires its Casualty Concentration Point.

With regard to choosing a Concentration Point, he says:

"A Casualty Concentration Point must be selected in the light of both military and medical demands, which are really two aspects